

lived many years in the Society's Gardens, where its portrait was taken by Mr. Wolf. In 1880 the Prince of Wales presented us with two female examples, mother and young, the latter of which is still living, and has paired with a male of the same species presented to us by Colonel Kinloch in 1883.

I am happy to be able to add that there is every appearance of the female Tahr being likely to increase her species in a short time.

10. CAPRA HYLOCRIUS.

Kemas hylocrius, Ogilby, P. Z. S. 1837, p. 81.

Capra (Ibex) warryato, Gray, Ann. & Mag. N. H. x. p. 267 (1842).

The "Neilgherry Ibex," as this Goat is usually called by Indian sportsmen, has never, so far as I know, been imported alive into Europe. Although I have received many letters promising living specimens for the Society, these animals have always died in India after a short period spent in captivity.

Although the horns of this species differ somewhat materially from those of *Capra jemlanica* in having the external angle in front much rounded off, I believe the two animals to be nearly allied.

This species is found only in the Neilgherries, Anamallays, and other adjoining ranges of Southern India.

June 1, 1886.

Dr. A. Günther, F.R.S., Vice-President, in the Chair.

The Secretary made the following report on the additions to the Society's Menagerie during May 1886:—

The total number of registered additions to the Society's Menagerie during the month of May was 190, of which 123 were by presentation, 31 by purchase, 18 by birth, 4 received in exchange, and 14 received on deposit. The total number of departures during the same period, by death and removals, was 139.

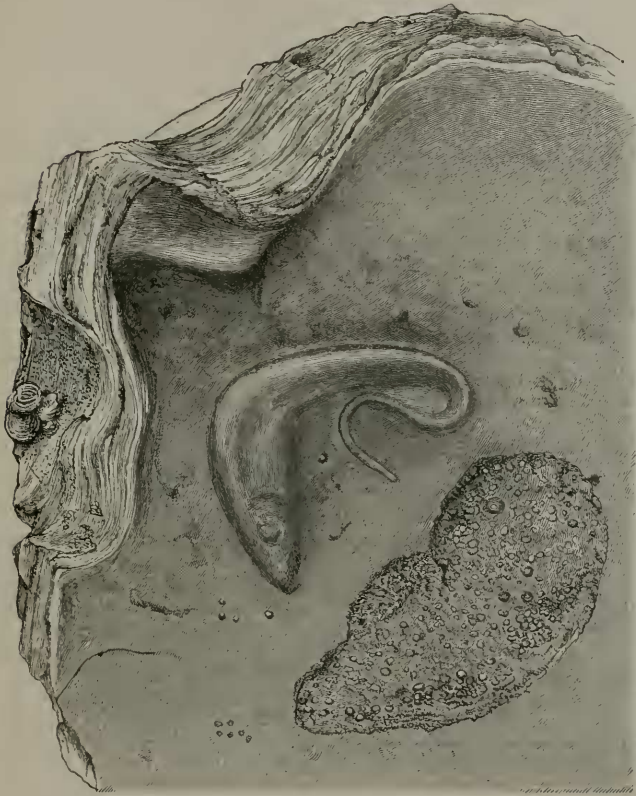
The most noticeable additions during the month were:—

1. An Orange-thighed Falcon (*Falco fusco-cærulescens*), presented by Captain W. M. F. Castle, R.N., May 5th, and stated to have been obtained in Chili. This is the first example of this elegant species which has been obtained by the Society.

2. Five Senegal Parrots (*Pæocephalus senegalus*), presented by R. B. Sheridan, Esq., May 5th. Four of these are young birds bred in a large aviary at Frampton Court, Dorchester, under the management and care of the late Mrs. Sheridan. This is of interest, as these Parrots are rarely known to breed in captivity.

Dr. Günther, F.R.S., exhibited a specimen of a small fish of the genus *Fierasfer* imbedded in a Pearl-Oyster, and made the following remarks:—

The specimen, which is represented in the accompanying woodcut of the natural size, has been in my possession for many years. It is an old shell of *Margarita margaritifera*, in which there is imbedded, behind the impression of the attractor muscle, a perfect



individual of a fish belonging to the genus *Fierasfer*. The fish is covered by a thin layer of pearl-substance, through which not only the general outlines of the body but even the eye and the mouth can be seen. The parasitic habits of *Fierasfer* are well known, and Putnam describes, in the 'Proceedings of the Boston Society of Natural History,' vol. xvi. 1874, p. 344, a species, *Fierasfer dubius*, which is found on both coasts of Central America, but inhabits Holothurians on the Atlantic, and Pearl-Oysters on the Pacific side; and he further mentions, in a footnote, an example belonging to the

Museum of Comparative Zoology at Cambridge, in which also a *Fierasfer* has been imbedded in the substance of the shell. In this case, as well as in ours, the fish, instead of introducing itself into the cavity between the two halves of the mantle, penetrated between the mantle and the shell, causing irritation to the mollusk, which the latter resented by immediately secreting the substance with which the intruder is now covered. It is remarkable to note that the secretion must have taken place in a very short time, at any rate before the fish could be destroyed by decomposition.

Mr. Sclater made some remarks on the most interesting objects noticed in the Zoological Gardens of Rotterdam, Amsterdam, Cologne, Antwerp, and Ghent, which he had lately visited.

In Rotterdam a pair of Bar-headed Geese (*Anser indicus*) had nested and the female was sitting; and a pair of Black-footed Penguins (*Spheniscus demersus*) had twice laid eggs. Mr. Sclater had never known either of these species breed in captivity before, but believed that the former had bred at Antwerp. Specimens of a *Leucopternis* (sp. inc.), *Epinachus albus*, and *Carpophaga goliath* were seen in the aviaries.

In Amsterdam the series of Cranes, Herons, and Storks were, as usual, very complete and the specimens in fine condition, particularly those of *Ardea sumatrana* and *A. herodias*. The Spoonbill was breeding in one of the aviaries. Other rare birds noticed were examples of *Couurus luciani*, *Alauda tatarica*, and *Cacatua gymnopsis*.

At Cologne a fine young male Burchell's Zebra, born in the Gardens 19 months ago, had been much admired, and would, it was hoped, be secured for the Society's Gardens.

The Gardens at Antwerp were in their usual excellent condition and very fully stocked. The flock of Barbary Sheep (*Ovis tragelaphus*) and herds of Lamias, Guanacos, Alpacas, and Vicunas were much admired. Amongst other noticeable objects were a pair of Isabelline Antelopes (*Cervicopra isabellina*), three young examples of *Casuarius uniappendiculatus*, and several specimens of *Ara glauca*, one of which had been obtained for the Society's collection.

At the small but well-kept Garden of the Société Royale d'Histoire Naturelle at Ghent was observed a fine male example of the Ostrich of Somali-land (*Struthio molybdophanes*), distinguishable when alive by its naked bluish skin, and the large red plaque in front of the tarsus.

A letter was read from Mr. J. M. Cornély, of Tours, C.M.Z.S., stating that his pair of Michie's Deer (*Elophodus michianus*) had bred, and that a young one had been born on the 15th May. The young one was stated to be nearly of the same colour as the mother, showing only a few indistinct spots.

The following papers were read:—

1. Notes on the Convoluted Trachea of a Curassow (*Nothocrax urumutum*), and on the Syrinx in certain Storks. By FRANK E. BEDDARD, M.A., F.R.S.E., Prosector to the Society.

[Received June 1, 1886.]

My predecessor in the office of Prosector to this Society, Mr. W. A. Forbes, has summed up all the facts that are known with respect to the convoluted trachea of Birds in a communication published in the 'Proceedings' for 1882 (p. 347)¹. The present note is a supplement to that paper, and deals with the convoluted trachea of the male *Nothocrax urumutum*. Among the Cracidae it is the rule for the males to have a convoluted trachea, while it is very unusual for the female to resemble the male in this respect; in every case when present the trachea makes a single loop on the right side of the carina sterni—sometimes very short, as in *Crax globicera*; sometimes of great length, as in *Pauxis galeata*, where the loop bends up on the right side of the carina, terminating near to its upper margin. In *Nothocrax urumutum* the male has a trachea which makes a single loop extending to the end of the carina sterni, as shown in the accompanying drawing (fig. 1, p. 322); the female, as Mr. Forbes has already pointed out, has a simple trachea.

On a Peculiarity in the Syrinx of Xenorhynchus and Abdimia.

The Order Herodiones appears to be separable into two very distinct families—the Ardeidae and the Ciconiidae, which differ from each other in certain anatomical peculiarities; thus the ambiens is always absent in the former, and generally, though not always, present in the latter; the pectoral muscle is separable into two distinct portions in the Storks, while in the Herons it is only incompletely separated by a tendinous band. Another well-marked difference is to be found in the structure of the syrinx.

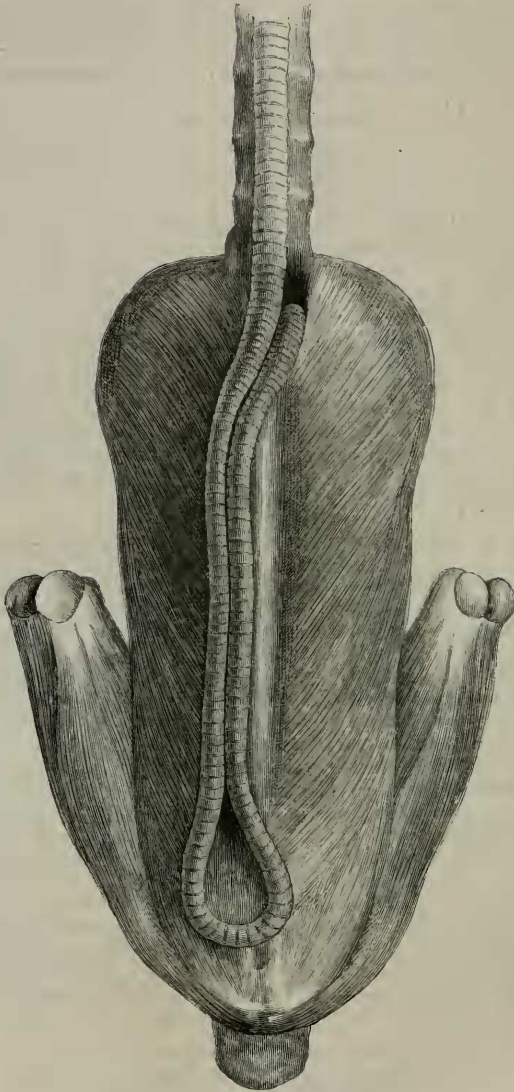
In the Storks² there are no intrinsic muscles; the lowest rings of the trachea are very slender and cartilaginous, often incomplete; and the occasional presence of an upwardly projecting bony piece from the lateral portions of the last three tracheal rings gives to the syrinx an appearance not at all unlike that of the Tracheophonine Passeres. The bronchi are particularly long, "the bifurcation of the trachea occurring at, or even a little above, the superior aperture of the thorax"³; the membrane which unites the two bronchi—which was termed by Garrod the *bronchidesmus*⁴—is complete in the Storks, that is to say, it commences from the very point where the bronchi diverge; the rings which make up the bronchi themselves are quite continuous, as in the Cathartidae, Ostrich, &c.

¹ Forbes's Collected Papers, p. 338.

² Garrod's Collected Papers, p. 669.

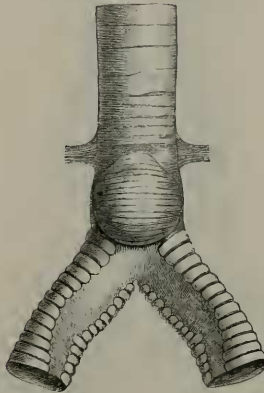
³ *Loc. cit.* p. 284. ⁴ *Loc. cit.* p. 479.

Fig. 1.

*Trachea of Nothocrax urumutum, ♂.*

In the Ardeidæ, on the other hand (including the Herons, Bitterns, and *Scopus*, which to this extent is a Heron¹), the syrinx has what may perhaps be called a more typical form. The bronchi are short, and the rings which compose them are only half-rings, and are completed on the inner side by membrane; there is a pair of intrinsic muscles arising beneath the sterno-tracheal muscles and inserted on to the first bronchial semiring; the bronchidesmus only commences at about the level of the fourth or fifth bronchial semiring; anteriorly, therefore, there is a free communication between the upper and lower surface of the bronchi: the first two bronchial rings are more or less ossified and closely connected with each other and with the preceding tracheal rings; the latter undergo no modifications such as those which exist in the Storks, but are of uniform thickness, closely

Fig. 2.

Syrinx of *Abdimia sphenorhyncha*.

applied and often ossified. The foregoing account does not of course pretend to be a detailed description of the syrinx in the two families, but it is sufficient to indicate the main differences and to serve as a basis for comparison of them with the syrinx of *Xenorhynchus senegalensis* and of *Abdimia sphenorhyncha*, which are in some respects intermediate between the two types.

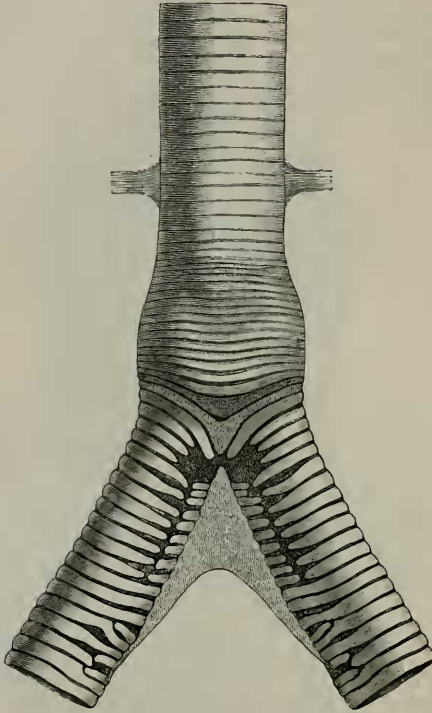
In *Xenorhynchus* there is a transition to the Ardeine syrinx in that the upper rings of both bronchi are incomplete and are (fig. 3) closed by membrane on the inner side.

It appears therefore that the syrinx of *Xenorhynchus* agrees with that of other Storks in the peculiar arrangement of the lowermost

¹ See F. E. Beddard, "A Contribution to the Anatomy of *Scopus umbretta*," P. Z. S. 1884, p. 543.

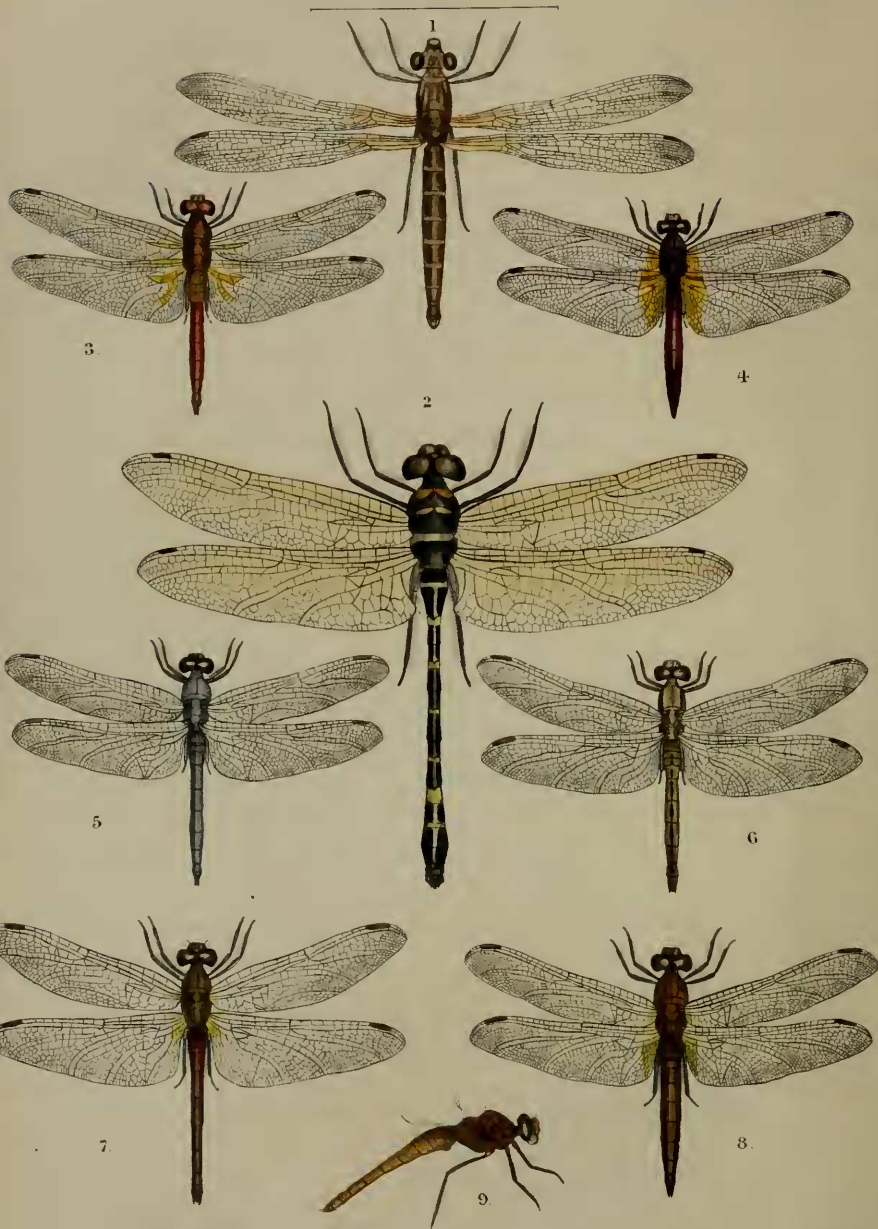
part of the trachea, while the presence of a membranous wall completing internally the upper bronchial half-rings recalls the Ardeine syrinx. *Mycteria americana* has a syrinx which is again intermediate between that of *Xenorhynchus* and the typical Storks; the bronchial

Fig. 3.

Syrinx of *Xenorhynchus senegalensis*.

rings are complete internally as in the latter, but the rings, instead of being of uniform width, are considerably narrower on the inner side of the bronchus, which therefore becomes largely membranous.

Abdimia sphenorhyncha (fig. 2) is another Stork which presents even a closer resemblance to the Herons in the form of its syrinx; the membranous inner wall of the bronchi is more largely developed than in *Xenorhynchus*, indeed quite as much as in the Ardeidæ; but there



Maxid. Horman-Fisher del et lith

Mintern Bros imp

DRAGON FLIES FROM N.W. INDIA.

are no intrinsic muscles, and the bronchidesinus is complete as in other Storks.

In no other Stork that I have had the opportunity of examining does the syrinx depart from the type of structure characteristic of the *Ciconiæ* as in the two above-mentioned genera.

Prof. Garrod has already mentioned that *Abdimia* and *Xenorhynchus* also approach the Herons in the absence of the ambiens muscle; I have been able to confirm Garrod's statement that this muscle is absent in *Abdimia* by the dissection of two specimens.

2. On a small Collection of Dragonflies from Murree and Campbellpore (N.W. India), received from Major J. W. Yerbury, R.A. By W. F. KIRBY, Assistant in Zoological Department, British Museum.

[Received May 17, 1886.]

(Plate XXXIII.)

In a collection of insects recently received by the British Museum from Major Yerbury, which he had formed at Murree, Campbellpore, and other neighbouring localities in N.W. India, between the months of August and November 1885, were a considerable number of Dragonflies in good preservation. They were numbered from 1 to 15; but a few were not ticketed. In some cases more than one species bore the same number, while in others the sexes of a species bore different numbers. Allowing for this, the actual number of species exemplified in the collection proved to be 19, four of which appear to be new to science. Among these 19 species, the most interesting are, first, the European *Sympetrum fonscolombi*, De Selys, which has not been previously recorded from India, so far as I know; and, secondly, a new species of *Micromerus* resembling the common *M. lineatus*, Burm., but really forming a new section in the genus.

LIBELLULIDÆ.

LIBELLULINÆ.

1. *PANTALA FLAVESCENS*, Fabr.

(No number or locality.)

2. *PALPOPLEURA SEXMACULATA*, Fabr. (no. 11).

Hassan Abdal and Campbellpore, Oct. 14 and Nov. 14, 1885 (♂ ♀).

3. *LEPTHEMIS SABINA*, Dru. (no. 8).

Hassan Abdal and Campbellpore, Oct. 14 and 28, 1885.

Two males. One bears a memorandum, "lavender abdomen"; but there is now no gloss over the black ground-colour.

4. *SYMPETRUM FONSCOLOMBEI*, De Selys (no. 1).

Murree, over water, Sept. 5 (♂).

Undistinguishable from European examples. Major Yerbury remarks, "♂ (?) dull crimson; ♀ (?) yellowish"; but the only ♀ specimens of *Sympetrum* in the collection are unlabelled, and appear to belong to an undescribed species.

5. *SYMPETRUM SUBPRUINOSUM*, sp. n. (Plate XXXIII. fig. 7.)

Exp. al. 60-62 millim.; long. corp. 20-21 millim.

Face olive-green, shading into dull orange above; underparts varied with yellow; occiput with black and yellow markings, nearly as in *S. fonscolombei*; thorax dull olive-green above, and black (more or less pruinose) below; pleuræ with two wide bright yellow bands, beneath the front band is a round yellow spot, beneath the second one or two, and behind, on each side of the median line, two more subtriangular yellow spots, coalescing in one specimen. Abdomen black beneath and at the sides, and yellowish tawny above; the first six or seven segments are marked behind with a series of black lines, gradually coalescing with the more extended black markings on the hinder segments; below these the markings on the first three segments are paler yellow, and there is sometimes an additional yellow spot on each side on the under surface of the first segment; the median crest is also narrowly black, expanding into spots on the two penultimate segments; upper appendages black, rather pointed; lower appendage convex, hairy. Legs black; tibiæ sometimes lined with yellow. Wings with black reticulation, very slightly yellow at the base; membranule white; 7 antecubital and 6 post-cubital nervures on the fore wings; pterostigma reddish brown, between black nervures, 3 millim. in length.

Three females, without locality or date of capture.

The black neurulation, unusually dark legs, and the pattern of the thorax are quite sufficient to separate this species at a glance from *S. fonscolombei*, De Selys, and *striolata*, Charp.

6. *ORTHETRUM HYALINUM*, sp. n. (nos. 6, 7). (Plate XXXIII. figs. 5, 6.)

Exp. al. 55 millim.; long. corp. 33-35 millim.

Male. Head pale straw-yellow, shading into greenish above; occiput yellow, with three black spots on each side; thorax and abdomen pulverulent blue, with a yellow spot at base of abdomen; in less adult specimens the thorax is marked nearly as in the female (*vide infra*), but darker; legs striped with black, yellow, and reddish; wings clear hyaline beyond the basal membranes; membranule long and narrow, white edged with black; 11-12 antecubital and 8 post-cubital nervures; pterostigma narrowly yellow, bordered by black nervures; upper appendages moderate, smooth, curving downwards, and recurved and pointed at the tip; lower appendage curved upwards, about two thirds as long as the others; appendages of the second segment prominent, hairy, with the anterior lobe sloping backwards.

Female. Head yellow, the upper part greener; occiput obscurely spotted; thorax reddish brown, with two yellow lateral stripes edged externally with black, and two yellow pleural stripes edged in front by the black sutural lines; legs varied with black, yellow, and reddish; between the wings runs a row of yellow markings similar to those found in many female *Libellulinae*; abdomen dull reddish tawny, with black lateral carinae and a black dorsal stripe, commencing on the second segment and narrowed at all the sutures. Wings nearly as in the male; one specimen has thirteen antecubital nervures.

Campbellpore, Nov. 14 (♂ ♀); Murree (♀), no date; upper slope of Nian Jani, above Kalabagh, about 9000 ft., Sept. 16 (♀).

Allied to the European *O. carulescens*, Fabr., and *O. ramburii*, De Selys.

7. *ORTHETRUM TRIANGULARE*, De Selys (nos. 3 and 4).

Murree, Aug. 10 and 16 (♂), Aug. 16 and 18 (♀).

The male much resembles the inky-black *O. carnaticum*, Fabr., which we have from Nepal. The females differ considerably in the intensity of colouring of the thorax and abdomen. As in some allied species, the particoloured eyes are remarkable in both sexes, the upper portion being reddish and the lower parts dark brown.

8. *ORTHETRUM NEGLECTUM*, Ramb. (no. 3).

Hassan Abdal and Campbellpore, Oct. 14 (♂ ♀) and Nov. 14 (♀).

The female is very similar to that of *O. triangulare*, but it is lighter in colour; the wings are clear hyaline (rarely the case in *P. triangulare*); and the pleuræ are uniform yellowish, with a small black ocellus on the mesopleura.

9. *TRITHEMIS AURORA*, Burm. (Plate XXXIII. fig. 3.)

A somewhat undercoloured male, without date or locality.

The species, which I take to be *T. aurora*, has only 10-11 antecubital and 6-8 postcubital nervures on the fore wings, placed rather widely apart. Like the next species it occurs both in India and Ceylon, but seems to be rarer. We have no specimens from the Philippines, the locality given by Burmeister.

10. *TRITHEMIS INTERMEDIA*, Ramb. (no. 13). (Plate XXXIII. fig. 4.)

Hassan Abdal, Oct. 14 (♂).

May be distinguished from *T. aurora* by the more numerous and crowded nervures—14-15 antecubital and 8-9 postcubital; the markings of the thorax beneath resemble those of *T. rubrinervis*, De Selys.

11. *TRITHEMIS FESTIVA*, Ramb. (no. 12).

Hassan Abdal, Oct. 14 (♂); Campbellpore, Nov. 14 (♂).